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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,482	06/26/2003	Pankai K. Mehrotra	K-1436PC1	5664

27877 7590 11/15/2007
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EXAMINER

SAVAGE, JASON L

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/606,482

Applicant(s)

MEHROTRA ET AL.

Examiner

Jason L. Savage

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-34 and 55-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 55 is/are allowed.
- 6) ☒ Claim(s) 25-34, 56 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25-34 and 57 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no basis for the limitation in claim 25, line 6 that the heat treatment temperature is "greater than 1400 degrees Centigrade". Claims 26-34 depend from claim 25 and thus are rejected for reciting the same claim limitation.

Regarding claim 57, Mixture VI in Table II exemplifies an embodiment containing 34.4% alumina, 19.1% silicon carbide whiskers and 46.2% titanium carbonitride. However, there does not appear to be a basis in the Application as originally filed for the alumina content to be between 30-40, silicon carbide whiskers between 15-25% and titanium carbonitride between 35-55% further wherein the titanium carbonitrides content is greater than the alumina content such as is claimed.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 25-28 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al. (US 5,858,181) as evidenced by Suzuki (US 5,168,080)

Regarding claims 25 and 28, Jindal teaches a ceramic cutting insert which may be heat treated by sintering or by hot pressing to form a densified insert (col. 3, ln. 32-47). Jindal further teaches that the cutting insert may be subjected to a grinding process to provide a fine surface finish (col. 8, ln. 46-67).

Regarding the limitation that the heat treatment is performed at the claimed temperature, the temperature range that is claimed is similar to that which would be used to sinter the cutting insert of Jindal. As such, the recitation that the cutting insert is sintered would meet the limitation of heat treating the ceramic insert within the claimed temperature range. As evidence that the sintering of the ceramic of Jindal would meet the limitation of a heat treatment within the claimed temperature range, Suzuki teaches that according to well known methods silicon nitride and silicon carbide materials are sintered at about 1700-1850° and 2000°C respectively (col. 1, ln. 20-40).

Regarding the limitation that the heat treatment is performed after the cutting insert has been ground, Jindal is not clear as to any particular order for grinding and heat treated by sintering or hot isostatically pressing. However, the claims are drawn to an article, not the method of making. It is unclear how simply heating the ground insert to a temperature within the claimed range after the insert has been ground would provide any structural difference between the claimed article and that of the prior art. In the alternative, if there is any difference, the difference must be minor and obvious. The

burden is shifted to applicants to show that simply heating the ground ceramic cutting insert such as is claimed would be structurally distinct from the insert of Jindal.

Otherwise a prima facie case of anticipation, or in the alternative, of obviousness has been established. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977). To date Applicant has provided no evidence or reasoning as to how the claimed article would differ from that of the prior art.

Regarding claim 26, Jindal teaches that the insert is coated (col. 8, ln. 46-67).

Regarding claims 27-28 and 31, Jindal teaches that the insert may be subjected to conventional ceramic powder processing techniques and densification such as hot pressing or sintering (col. 3, ln. 31-47). As such, it would have been obvious to one of ordinary skill in the art to have subjected the insert of Jindal to a sintering and/or hot isostatically pressing step with a reasonable expectation of success. One would have been motivated to have modified the insert of Jindal in such a manner so as to insure the insert was sufficiently densified and exhibited suitable strength and toughness properties.

Regarding claims 32-34, Jindal teaches that the insert may be alumina based and may contain materials such as silicon carbide whiskers, zirconia, as well as carbonitrides of material such as Ti (col. 4, ln. 1-32). Although Jindal does not exemplify an embodiment wherein titanium carbonitrides are contained in the cutting insert, it would have been obvious to have added then since it teaches carbide and carbonitrides of titanium may be included.

Claims 30 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al. (US 5,858,181) in view of Moriguchi et al (US 5,296,008).

Jindal teaches what is set forth above and further recites that cutting inserts of various materials including silicon nitride based materials may be processed such as is recited by Jindal (col. 2, ln. 1-17). However, Jindal is silent as to the cutting insert having the composition claimed.

Moriguchi teaches a ceramic cutting insert which is heat treated by sintering having excellent wear resistance and toughness (col. 1, ln. 10-14). Moriguchi further teaches that teaches cutting inserts having a composition which is silicon nitride based and is preferably contained in an amount of at least 90% by weight (col. 4, ln. 53-68). Moriguchi further teaches that other elements may be contained in the insert such as aluminum nitride, alumina, magnesia and yttria in amounts that overlap the ranges claimed (col. 5, ln. 10-30).

It would have been within the purview of one of ordinary skill in the art at the time of the invention to have recognized that any silicon nitride based composition could be

employed in the invention of Jindal including the silicon nitride based composition of Moriguchi with a reasonable expectation of success.

Regarding claim 56, as set forth above the sintering temperature of silicon nitride and silicon carbide based ceramics are above 1600°C. As such, Jindal would meet the claim limitation.

Claims 25-28, 30 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'174 (JP 04-136174 translation provided by Applicant on 8-4-03).

JP'174 teaches a coated ceramic cutting insert which may be sintered, ground and subsequently heat treated (page 3, Embodiments). JP'174 further teaches that the final heat treatment is performed at a temperature between 1050-1400°C to modify the matrix surface (page 3, Embodiments and page 1, What is Claimed).

Although the claim limitations recite that the heat treatment temperature is greater than (emphasis added) 1400°C, the claims are drawn to an article, not the method of making. Applicant has not shown how the claimed article having been heated to greater than (emphasis added) 1400° would be structurally distinct from the insert of JP'174 which may be heated up to 1400°C.

Regarding claims 27 and 31, JP'174 does not teach that the cutting insert is hot isostatically pressed after sintering and prior to grinding. However, hot pressing is known in the art to for densifying the insert and improving the strength and toughness of the formed insert. It would have obvious to one of ordinary skill in the art to have

subjected the insert to hot pressing in order to densify and improve the properties of the insert.

Regarding claim 30, JP'174 teaches that the ceramic cutting insert may have a composition which is silicon nitride based and may further contain additives of alumina, aluminum nitride, magnesia and zirconia (p. 3, Embodiments).

Regarding claim 56, Applicant has not shown how the claimed article having been heated to about 1600°C would be structurally distinct from the insert of JP'174 which may be heated up to 1400°C.

Allowable Subject Matter

Claim 55 is allowed.

Response to Arguments

Applicant's arguments filed 9-10-07 have been fully considered but they are not persuasive.

Rejection of Claims 25-34 under 35 USC §112, 1st paragraph

Applicant argues that Applicant can show possession of the claimed invention using descriptive means as "words, etc". Applicant recites several examples using temperatures which are higher than 1400°C in an attempt to show sufficient basis for the added claim limitation. While the listed temperatures are greater than 1400, Applicant has not shown any support for the specific endpoint of 1400. From the disclosure there is basis for 1300°C and 1600°C as recited on page 9 of the

specification. Merely citing temperatures that happen to be several hundred degrees higher than 1400 does not provide sufficient basis for the limitation.

Rejection of Claims 25-28 and 31-34 under 35 USC §103(a) over Jindal et al

Applicant argues that the heat treatment after grinding taught by Jindal is performed at 400°C which does not fall within the temperature ranged claimed by Applicant.

As was set forth in the rejection above, Jindal teaches that the insert may be sintered. Sintering of the insert would be a heat treatment which is performed at a temperature within the range claimed.

As for the recitation that the heat treatment is performed after (emphasis added) the grinding step, Jindal is not clear as to any particular order for grinding and heat treated by sintering or hot isostatically pressing. However, the claims are drawn to an article, not the method of making. It is unclear how simply heating the ground insert to a temperature within the claimed range after the insert has been ground would provide any structural different between the claimed article and that of the prior art. In the alternative, if there is any difference, the difference must be minor and obvious. To date Applicant has provided no evidence or reasoning as to how the claimed article would differ from that of the prior art.

**Rejection of Claims 25-26, 28 and 30 under 35 USC §103/(a) over Jindal et al
in view of Moriguchi**

Applicant argues that it is improper to combine a ground-heat treated article of Jindal with a non-ground article of Moriguchi to arrive at the claimed invention of claim 30.

However, it is well settled that the test of obviousness is not whether the features of one reference can be bodily incorporated into the structure of another and proper inquiry should not be limited to the specific structure shown by the references, but should be into the concepts fairly contained therein, and the overriding question to be determined is whether those concepts would suggest to one of ordinary skill in the art the modifications called for by the claims, *In re Van Beckum*, 169 USPQ 47 (CCPA 1971), *In re Bozek*, 163 USPQ 545 (CCPA 1969); *In re Richman*, 165 USPQ 509 (CCPA 1970); *In re Henley*, 112 USPQ 56 (CCPA 1956); *In re Sneed*, 218 USPQ 385 (Fed. Cir. 1983).

In response to the issue whether the reference is nonanalogous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved, *In re Wood*, 202 USPQ 171, 174. In the instant case, both Jindal and Moriguchi are generally drawn to ceramic cutting inserts which are heat treated by sintering. As such, Applicant's assertion that the references

are not combinable or that they are combined solely on the basis of hindsight reasoning is not persuasive.

Rejection of Claims 25-28 and 31-34 under 35 USC §103(a) over JP'174

Applicant argues that JP'174 would not read on the claimed invention since it expressly discourages a heat treatment above 1400°C. However, as recited in the rejections above, the claims are drawn to an article not the method of making. Applicant has not shown how the claimed article having been heated to greater than (emphasis added) 1400° would be structurally distinct from the insert of JP'174 which may be heated up to 1400°C.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason Savage
11-5-07



KEITH D. HENDRICKS
SUPERVISORY PATENT EXAMINER